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Abstract

Women's fertility intentions are influenced not only by their own gender role attitudes, but may also be constrained by their husbands' gender role attitudes. Analysis of 2014 data from the China Family Panel Studies (CFPS) (N=7089) reveals that married women in China exhibit a phenomenon of fertility dependency, whereby husbands' traditional gender role attitudes exert a more significant influence on wives' fertility intentions than the wives' own traditional gender role attitudes. Supplementary analysis using CFPS 2022 data (N=555), with fertility plans as the outcome variable, continues to support the existence of fertility dependency. Moreover, the spatiotemporal distribution of fertility dependency is uneven, being more pronounced among women from earlier cohorts, with lower educational attainment, holding agricultural hukou, or residing in central and western regions. Further analysis indicates that household decision-making power partially explains this phenomenon: the traditional "men work outside, women work inside" division of labor constrains women's household decision-making power, thereby reinforcing fertility dependency, while enhanced decision-making power is accompanied by strengthened fertility autonomy among women. These findings not only underscore the role of both spouses' attitudes and perceptions in women's fertility decision-making, but also provide a psychological perspective for understanding gender equality through the lens of gender role attitudes.

Full Text

Fertility Dependence or Fertility Autonomy? The Impact of Husbands' Traditional Gender Role Conceptions on Wives' Fertility Intentions

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Abstract

Women's fertility intentions are influenced not only by their own gender role conceptions but also potentially constrained by their husbands' gender role attitudes. Analysis of 2014 China Family Panel Studies (CFPS) data (N = 7,089) reveals that Chinese married women exhibit a phenomenon of "fertility dependence," whereby husbands' traditional gender role conceptions exert a more significant influence on wives' fertility intentions than wives' own conceptions. Supplementary analysis using 2022 CFPS data (N = 555), with fertility plans as the outcome variable, corroborates the existence of fertility dependence. Moreover, the spatiotemporal distribution of fertility dependence is heterogeneous, being more pronounced among women from earlier generations, with lower education levels, agricultural hukou status, or residing in central and western China. Further analysis indicates that household decision-making power partially explains this phenomenon: the traditional "male breadwinner, female homemaker" division of labor restricts women's decision-making authority within the family, thereby reinforcing fertility dependence, while enhanced decision-making power is associated with greater fertility autonomy. These findings not only highlight the role of spousal beliefs and attitudes in women's fertility decisions but also provide a psychological perspective for understanding gender equality through the lens of gender role conceptions.

Keywords: fertility intentions, fertility dependence, fertility autonomy, gender role conceptions

1 Introduction

Since the reform and opening-up, Chinese women's social status has undergone significant transformation. The white paper *Equality, Development and Sharing: Remarkable Progress in Women's Cause in 70 Years Since New China* released by the State Council Information Office demonstrates substantial improvements in Chinese women's status in employment, education, political participation,

and family life, further manifesting the power of “half the sky.” However, scholars note that despite continuous improvements in women’s educational attainment, employment opportunities, and social status, they still largely adhere to the norms and practices embedded in traditional gender roles—such as wife, mother, and daughter-in-law—a contradiction that affects modern Chinese women’s identity and behavioral decision-making to some extent (Evans, 2021). Against the backdrop of globally low fertility rates, the relationship between women’s gender role conceptions and fertility decisions has attracted considerable attention. Although no universally accepted conclusion has been reached regarding this relationship, existing research commonly focuses on how women’s own traditional gender role conceptions influence their fertility intentions.

Drawing on interdependence theory (Zhao & Zuo, 2005), this study innovatively adopts a relationship-oriented perspective to examine how married individuals’ traditional gender role conceptions affect their spouse’s (rather than their own) fertility intentions. The results reveal that a considerable proportion of married women in China exhibit “fertility dependence,” whereby husbands’ traditional gender role conceptions exert a more significant impact on wives’ fertility intentions than wives’ own conceptions. Further heterogeneity analysis shows that this phenomenon is particularly prominent among women from earlier generations, with lower education levels, residing in central and western regions, or holding agricultural hukou. In contrast, women from later generations, with higher education, residing in eastern regions, or holding non-agricultural hukou demonstrate greater “fertility autonomy,” characterized by stronger influence of their own gender role conceptions on fertility intentions and diminished influence from their husbands. Additionally, the study finds that the allocation of decision-making authority over household financial matters substantially influences women’s fertility dependence or autonomy. This research not only helps reveal the current state of gender equality in China from a psychological perspective but also offers a new lens for understanding the relationship between traditional gender role conceptions and fertility intentions.

1.1 Gender Role Conceptions and Fertility Intentions

Gender role conceptions, also termed gender role attitudes, refer to individuals’ attitudes and beliefs regarding gender-related social norms and role divisions (Liu et al., 2011; Lindsey, 2020). These conceptions significantly impact marriage and family life, labor markets, women’s career development, and serve as an important indicator of a society’s gender equality level (Wang & Wu, 2019). Numerous domestic and international studies indicate that women holding traditional gender role conceptions (i.e., “male breadwinner, female homemaker”) typically exhibit stronger fertility intentions (Hu & Lin, 2020; Jiang, 2022; Li & Li, 2024; Li et al., 2024; Miller & Pasta, 1995). Conversely, women with egalitarian gender conceptions demonstrate relatively lower fertility intentions, largely because they face greater conflicts between career development and family responsibilities (Goldscheider et al., 2015), and as women’s career

opportunities expand, they no longer rely solely on marriage or childbearing to achieve self-actualization (McDonald, 2000). Moreover, evidence suggests these findings also apply to men. For instance, men with traditional gender conceptions tend to desire more children, as they view fatherhood as integral to male identity (Bianchi & Milkie, 2010), while men with egalitarian conceptions show lower fertility intentions (Okun & Raz-Yurovich, 2019). Of course, evidence also indicates that the relationship between gender role conceptions and fertility intentions is more complex than imagined, influenced by a series of macro- and micro-level factors including socioeconomic conditions, cultural environments, and social strata (Lappegård et al., 2021; Neyer et al., 2013).

Existing research has greatly advanced our understanding of the “gender role conceptions-fertility intentions” relationship. However, one limitation is that studies typically assume individuals’ gender role conceptions only affect their own fertility intentions, with researchers primarily focusing on women’s gender role conceptions. Yet, as interdependence theory posits, the essence of interpersonal relationships manifests as mutual influence among members (Zhao & Zuo, 2005), with dyadic relationships constituting the basic unit of interpersonal relations (Kenny et al., 2020). Therefore, beyond examining how married individuals’ gender role conceptions affect their own fertility intentions, we must investigate how spouses’ gender role conceptions influence fertility intentions to more completely and accurately reflect reality. Wan and Chen (2024) and Okun and Raz-Yurovich (2019) also note that individuals’ fertility intentions are often influenced by their spouses’ thoughts and attitudes, and neglecting this relationship leads to incomplete conclusions. In short, this study, grounded in interdependence theory and adopting a relationship-oriented perspective, focuses on examining how spouses’ traditional gender role conceptions influence individuals’ fertility intentions. Considering that women are the primary actors in childbearing, we emphasize the impact of husbands’ traditional gender role conceptions on wives’ fertility intentions, thereby offering a new research perspective to supplement existing literature.

1.2 Fertility Dependence or Fertility Autonomy? A Gender Role Conception Perspective

Gender status theory posits that traditional societies assign different labor divisions to men and women, with men bearing external economic responsibilities and women responsible for childbearing, child-rearing, and housework. This division not only leads to unequal resource possession but also creates unconscious gender biases among both sexes, namely that women should rely on men for decision-making (Ridgeway, 2001; Steyn & White, 2011). In China, despite improvements in women’s status, the “male breadwinner, female homemaker” model remains dominant (Xu & Huang, 2018). Men’s labor income remains the primary economic source for many families, while substantial women’s work in childbearing and housework lacks economic returns, making it difficult for them to achieve economic independence and forcing them to depend on their

husbands (Yang & Yang, 2013). This economic dependence enables men to dominate household decision-making and reinforces the notion that women should comply with their husbands' wishes on important matters like childbearing, thereby creating fertility dependence. Based on this analysis, we propose the following hypothesis:

Hypothesis 1: Compared to women's own traditional gender role conceptions, husbands' traditional gender role conceptions exert a more significant influence on women's fertility intentions; that is, fertility dependence exists.

Hypothesis 2: Husbands' advantage in household decision-making power partially explains the formation of fertility dependence.

The spatiotemporal distribution of fertility dependence is not homogeneous but rather shaped by multiple factors. Social culture, economic structure, policy regulations, and individual characteristics collectively mold gender-based labor divisions, which may either reinforce fertility dependence or weaken its influence, even fostering fertility autonomy—where women base fertility decisions more on their own gender role conceptions while husbands' influence diminishes. This study examines factors at both individual and societal levels.

We first consider two individual-level factors: generation and education. Historical contexts profoundly affect gender divisions across generations. Earlier generations are often influenced by more traditional gender role conceptions that position men as dominant in labor markets and economic production while women primarily handle family care and child-rearing (Goldin, 1994). In contrast, later generations grow up in more diverse and open societies, holding more flexible attitudes and choices regarding gender divisions (Hu & Scott, 2016). Second, different educational and career development opportunities significantly influence gender divisions. Women with fewer educational opportunities also have more limited access to labor markets, leading them to bear greater responsibilities in household and informal economies (Esping-Andersen, 2009). Conversely, higher education levels for women pave the way for entry into more professional fields, gradually balancing gender divisions (Ye & Wu, 2011). In short, this study argues that women from later generations or with higher education levels have more career development opportunities, which elevate their family status, help them overcome unconscious biases formed by gender status differences, emphasize the influence of their own gender conceptions on fertility decisions, and thereby reduce fertility dependence on their husbands, manifesting as fertility autonomy.

Second, we consider two societal-level factors: region and hukou type. In terms of regional division, China's eastern coastal areas experienced earlier economic development, industrialization, and urbanization, with higher proportions of service and high-tech industries. Women in these regions have more opportunities to enter labor markets, engage in knowledge-intensive and service-oriented positions, and face relatively smaller gender income gaps (Cheng et al., 2015). Moreover, based on economic prosperity, eastern regions have more compre-

hensive social policies and welfare systems, making it easier for women to balance work and family responsibilities and thus participate more in formal labor markets (Xu et al., 2022). Central and western regions, constrained by fiscal resources, have relatively lagging social welfare systems, limiting women's participation in labor markets and often requiring them to assume more household and caregiving responsibilities. Regarding hukou type, due to lower levels of rural economic development and limited labor market opportunities, rural women are often excluded from high-paying or formal employment, engaging more in informal economy labor (Jacka, 2014). In contrast, women with urban hukou have more opportunities to receive higher education and enter service and professional-technical industries, where gender divisions are relatively more balanced. The hukou system also profoundly affects the distribution of social welfare and public resources. Due to hukou restrictions, rural women enjoy fewer social welfare benefits in healthcare, pensions, and education, increasing their caregiving responsibilities within families and exacerbating the continuation of traditional gender divisions (Ji et al., 2017). In short, women in eastern China or with non-rural hukou often have opportunities to break away from traditional gender-based labor divisions, pursue their own career development, elevate their family status, and reduce fertility dependence on their husbands.

Based on the above analysis, we propose a third hypothesis.

Hypothesis 3: Generation, education level, region, and hukou type moderate fertility dependence. Specifically, fertility dependence is particularly pronounced among women from earlier generations, with lower education levels, residing in central and western regions, or holding agricultural hukou. In contrast, fertility dependence is not significant among women from later generations, with higher education levels, residing in eastern regions, or holding non-agricultural hukou, who may even exhibit opposite characteristics—namely, fertility autonomy.

Examining fertility dependence and fertility autonomy from a gender role conception perspective carries dual significance. First, this perspective transcends the individual-focused analysis prevalent in existing research by introducing a relationship-oriented perspective that better reflects reality, helping to reveal the mechanisms of mutual influence between spouses' gender conceptions and thereby expanding understanding of fertility decision-making. Second, while existing research has focused more on how unequal resource possession affects gender inequality, it has paid less attention to the role of individual conceptions. This study breaks through the limitations of the economic resource perspective by incorporating gender role conceptions into the analytical framework and, through the comparison between fertility dependence and fertility autonomy, deepens understanding of the current state of gender equality from a psychological level.

2.1 Data Sources and Sample

This study primarily utilizes data from the 2014 China Family Panel Studies (CFPS). It is important to note that: (1) the variable for participants' birthplace required for endogeneity testing (see Section 3.2) mainly uses 2010, 2018, and 2020 CFPS data, as this variable was only recorded in these three waves; (2) the ethnicity control variable was taken from the CFPS 2018 cross-year individual core variable database, as the 2018 data contained more complete ethnicity information; (3) to further examine whether the fertility dependence phenomenon holds across temporal dimensions and at the behavioral level (see Section 3.7), this study uses CFPS 2022 data in supplementary analysis.

The data cleaning process proceeded as follows. First, using two matching methods—husband' s personal ID matched to wife' s spouse ID, and wife' s personal ID matched to husband' s spouse ID—we obtained 12,771 and 12,749 matched couple datasets, respectively, designated as Database 1 and Database 2. These two databases were then one-to-one matched using the wife' s personal ID, excluding 47 and 25 unmatched anomalous cases from Database 1 and Database 2, respectively, yielding 12,724 matched couples. Based on this, we sequentially excluded 2,042 participants with missing predictor variables (traditional gender role conceptions), 3,356 participants with missing birthplace variables or fewer than 10 people in their birth county (required for the instrumental variable method) to more accurately reflect the true characteristics of the region (Shi, 2020), 15 participants with anomalous outcome variables (fertility intentions), 95 participants with anomalous decision-making variables (detailed later), 50 participants with anomalous marital status variables, 76 participants with missing control variables (detailed later), and 1 participant automatically excluded by the program when controlling for provincial fixed effects (being the only person in their province), ultimately obtaining 7,089 valid participants.

Unless otherwise specified, all data analyses in this study were conducted using Stata 17.

The outcome variable is the wife' s fertility intention. Following existing literature (Chen & Wang, 2024; Hou et al., 2014; Lu & Sun, 2024), this study uses desired number of children as the indicator for fertility intention, measured by the CFPS 2014 item “Without considering policy restrictions, how many children do you think would be ideal? (0-10 children).”

The predictor variable is the couple' s traditional gender role conceptions. CFPS 2014 items measuring gender role conceptions include: “Men should focus on their careers, women on their families,” “A woman does well to marry well,” “A woman is incomplete without children,” and “For the sake of continuing the family line, a woman should have at least one son.” Participants rated these conceptions on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Following Qing (2018), this study conducted reliability and validity analyses on these five items. Results showed that the first four items formed a single common factor, with only one factor extractable; removing the fifth item increased Cronbach' s

s α from 0.69 to 0.71 across the full sample. Given these results, this study excluded the item “Men should share half of housework” and used the mean score of the remaining four items as the indicator for traditional gender role conceptions: higher scores indicate more traditional conceptions. In the final analytical sample, this variable’s Cronbach’s $\alpha = 0.672$.

Finally, after reviewing existing literature (Hou et al., 2014; Li et al., 2021; Wang & Peng, 2015; Yang & Zhong, 2023; Zhu et al., 2024) and considering data availability, we included a series of individual and household factors that potentially influence fertility intentions as control variables. Individual characteristics include personal annual income (natural log after adding 1), years of education (illiterate/semi-illiterate = 0; primary school = 6; junior high = 9; senior high/technical secondary school = 12; junior college = 15; undergraduate = 16; master’s and above = 19), health status (very healthy = 1; very unhealthy = 5), age, medical insurance (yes = 1; no = 0), ethnicity (Han = 1; other = 0), hukou (agricultural = 1; non-agricultural = 0), and number of children. Household factors include total family property value (natural log after adding 1), household financial assets (natural log after adding 1), and number of household members. Finally, we accounted for participants’ region, following Shen et al. (2021) by dividing provinces into eastern, central, and western regions. Table 1 presents descriptive statistics for key variables. Descriptive statistics for control variables are provided in Supplementary Table S1.

Table 1 Descriptive Statistics and Correlations for Main Variables

Variable	Mean	SD	1	2	3
1. Desired number of children (wife)	1.89	0.73	—		
2. Traditional gender role conceptions (husband)	2.73	0.74	0.14*** [0.13, 0.18]	—	
3. Traditional gender role conceptions (wife)	2.62	0.73	0.15*** [0.14, 0.18]	0.35*** [0.34, 0.38]	—

*Note: Sample size $N = 7,089$ for desired number of children (wife), traditional gender role conceptions (husband), and traditional gender role conceptions (wife). Correlation coefficients are Spearman correlations (we also calculated Pearson correlations for spouses’ traditional gender role conceptions, which was also 0.14). Confidence intervals were obtained via bootstrap sampling (5,000 iterations) using SPSS. ** $p < 0.001$.**

To ensure the reliability of predictor variables, we also conducted factor analysis based on the final analytical sample. Results showed factor loadings for the four items ranged from 0.67 to 0.76, meeting commonly used standards in social science research (Ji et al., 2022; Wang et al., 2020; Zhao et al., 2024).

Additionally, when any single item was removed, Cronbach' s α decreased to 0.60, 0.58, 0.61, and 0.65, respectively.

Given that the outcome variable (wife' s desired number of children) is a non-negative count variable, and following existing literature (Guo & Wu, 2006; Hu & Lin, 2020; Lu & Sun, 2024), this study employs Poisson regression models to verify the existence of fertility dependence among married women. We control for provincial fixed effects to account for potential unobserved factors that may influence wives' fertility intentions, such as regional customs and social norms. Additionally, considering that random disturbance terms for different participants within the same province may be correlated, standard errors in the regression equations are clustered at the provincial level.

Regression results show that husbands' traditional gender role conceptions are significantly positively associated with wives' fertility intentions ($B = 0.014$, $SE = 0.004$, $z = 3.121$, $p = 0.002$, 95% CI [0.005, 0.023]), meaning that more traditional gender role conceptions among husbands correspond to higher fertility intentions among wives. In contrast, the relationship between wives' own traditional gender role conceptions and their fertility intentions is not significant ($B = 0.008$, $SE = 0.007$, $z = 1.270$, $p = 0.204$, 95% CI [-0.004, 0.021]). Complete results are provided in Supplementary Table S2. These findings provide preliminary evidence for Hypothesis 1. However, we note that the regression coefficients for both spouses' traditional gender role conceptions are relatively low, indicating that fertility is a complex social phenomenon and that individual or spousal gender conceptions can only explain a small portion of the variance. Additionally, given the long-term influence of family planning policies, having one child may have become the default option. Therefore, comparing other fertility choices (zero children, two children, or multiple children) against one child can further enrich our findings.

We divided the dependent variable into four categories for multinomial logistic regression analysis: desired number of children = 0 (childless), = 1 (one child), = 2 (two children), and ≥ 3 (multiple children). Regression results show that: (1) Women exhibit strong fertility autonomy in their preference for zero children (vs. one child) ($B = -0.646$, $SE = 0.195$, $z = -3.307$, $p = 0.001$, 95% CI [-1.029, -0.263]), meaning that women with less traditional gender role conceptions are more likely to view having zero children (rather than one child) as ideal; (2) Neither husbands' ($B = -0.001$, $SE = 0.030$, $z = -0.019$, $p = 0.985$, 95% CI [-0.059, 0.057]) nor wives' ($B = 0.085$, $SE = 0.057$, $z = 1.474$, $p = 0.141$, 95% CI [-0.028, 0.197]) traditional gender role conceptions significantly affect preferences for two children (vs. one child), suggesting that the influence of traditional gender conceptions is diluted by other factors (such as economic considerations) in two-child decisions. For instance, we note that women' s personal annual income significantly affects their two-child (vs. one child) preference ($B = 0.022$, $SE = 0.010$, $z = 2.309$, $p = 0.021$, 95% CI [0.003, 0.041]), a phenomenon that only appears in two-child (vs. one child) preferences; (3) However, when husbands hold more traditional gender role conceptions, wives tend to view having mul-

multiple children (vs. one child) as the most ideal state ($B = 0.241$, $SE = 0.043$, $z = 5.661$, $p < 0.001$, 95% CI [0.158, 0.325]), demonstrating clear fertility dependence. In summary, fertility autonomy primarily appears in zero-child (vs. one child) preferences, while fertility dependence appears in multiple-child (vs. one child) preferences. Complete regression results are provided in Supplementary Table S3.

3.2 Endogeneity Testing

The baseline regression results preliminarily verify the existence of fertility dependence among married women. However, the above models may suffer from endogeneity issues. First, some variables that affect both husbands' gender role conceptions and wives' fertility intentions may be omitted from the regression, causing endogeneity. Second, reverse causality may create endogeneity problems. On one hand, husbands' gender role conceptions as a subjective attitude may influence wives' fertility intentions; on the other hand, husbands' gender role conceptions may change in response to variations in wives' fertility intentions. Third, self-selection may also lead to endogeneity. During marriage formation, both spouses may select each other based on their gender role conceptions and fertility intentions. For example, men with more traditional gender role conceptions may prefer women with higher fertility intentions as spouses, and vice versa.

Following existing literature (Qing, 2018; Dohmen et al., 2012), this study constructs the average traditional gender role conceptions of men in the husband's birth county as an instrumental variable (IV)—that is, the mean score of traditional gender role conceptions among other male participants from the husband's birth county. The rationale for this IV is that husbands' gender role conceptions are profoundly shaped by the social environment of their birthplace over the long term (Qing, 2018), while the overall gender conceptions of men in the husband's birthplace are unlikely to be directly linked to the wife's fertility intentions.

Since wives' fertility intentions are non-negative count variables, this study follows existing literature (Balsmeier et al., 2014; Hwang, 2020; Kjøllesdal et al., 2018) in employing an IV-Poisson model to address endogeneity. However, this method cannot output metrics for evaluating IV validity. Given that linear 2SLS models have more mature statistics for IV evaluation (Kleibergen & Paap, 2006), this study also uses linear 2SLS models for endogeneity testing. The first-stage regression coefficients from IV-Poisson and 2SLS models are nearly identical. The Kleibergen-Paap rk LM statistic in the linear 2SLS model is significant at the 0.01 level, rejecting the null hypothesis of underidentification (Li & Guo, 2024; Zhuang et al., 2024). The Kleibergen-Paap rk Wald F statistic is 98.479, far exceeding the Stock-Yogo weak IV critical value of 16.38, rejecting the null hypothesis of weak IV (Wang, 2016; Zhang et al., 2021). Therefore, the IV used in this study is valid.

Endogeneity testing results show that the estimated coefficients for the IV in the first stage are significant at the 0.001 level in both the IV-Poisson model ($B = 0.421$, $SE = 0.042$, $z = 10.138$, $p < 0.001$, 95% CI [0.340, 0.503]) and the 2SLS model ($B = 0.421$, $SE = 0.042$, $t = 9.924$, $p < 0.001$, 95% CI [0.338, 0.504]), indicating effective IV selection. Furthermore, in the first stage, wives' traditional gender role conceptions are significantly positively correlated with their own fertility intentions (IV-Poisson: $B = 0.251$, $SE = 0.015$, $z = 16.234$, $p < 0.001$, 95% CI [0.220, 0.281]; 2SLS: $B = 0.251$, $SE = 0.016$, $t = 15.891$, $p < 0.001$, 95% CI [0.220, 0.282]), but become non-significant in the second stage after including husbands' traditional gender role conceptions (IV-Poisson: $B = -0.028$, $SE = 0.016$, $z = -1.738$, $p = 0.082$, 95% CI [-0.060, 0.004]; 2SLS: $B = -0.071$, $SE = 0.041$, $t = -1.717$, $p = 0.099$, 95% CI [-0.157, 0.014]). Husbands' traditional gender role conceptions remain significantly positively correlated with wives' fertility intentions (IV-Poisson: $B = 0.154$, $SE = 0.052$, $z = 2.968$, $p = 0.003$, 95% CI [0.052, 0.256]; 2SLS: $B = 0.346$, $SE = 0.133$, $t = 2.599$, $p = 0.016$, 95% CI [0.071, 0.621]). These results show that after re-estimating the baseline model using IV methods, our main conclusions remain unchanged, again supporting Hypothesis 1.

3.3 Robustness Checks

3.3.1 Alternative Measurement Methods To ensure robustness of findings, this study follows Jiang (2022) by conducting factor analysis separately on the four items for husbands' traditional gender role conceptions and the four items for wives' traditional gender role conceptions. The resulting factor scores serve as predictor variables, with higher factor scores indicating more traditional gender role conceptions. Before factor analysis, to ensure sufficient correlation among items, Kaiser-Meyer-Olkin (KMO) tests and Bartlett's sphericity tests were conducted.

Results show KMO values of 0.734 for husbands' four items and 0.737 for wives' four items, with Bartlett's sphericity test chi-square values of 4,175.033 ($p < 0.001$) and 4,314.221 ($p < 0.001$), respectively, indicating adequate correlation among items and suitability for factor analysis. Subsequently, two factor analysis methods were applied to both husbands' and wives' four items: principal factor method and principal component method. Factor loadings from both methods underwent orthogonal rotation to ensure factor independence. Finally, factor scores were calculated using the regression method based on rotated factor loadings. After changing the measurement method, husbands' traditional gender role conceptions remain significantly positively associated with wives' fertility intentions (principal factor: $B = 0.015$, $SE = 0.005$, $z = 3.168$, $p = 0.002$, 95% CI [0.006, 0.024]; principal component: $B = 0.012$, $SE = 0.004$, $z = 3.085$, $p = 0.002$, 95% CI [0.004, 0.019]), while the relationship between wives' traditional gender role conceptions and their own fertility intentions remains non-significant (principal factor: $B = 0.009$, $SE = 0.007$, $z = 1.297$, $p = 0.195$, 95% CI [-0.005, 0.023]; principal component: $B = 0.008$, $SE = 0.006$, $z = 1.339$,

$p = 0.181$, 95% CI [-0.004, 0.019]), supporting Hypothesis 1. Complete results are provided in Supplementary Table S5.

3.3.2 Alternative Econometric Models To further verify regression robustness, this study uses traditional OLS and Tobit models for regression analysis. The Tobit model is employed because CFPS restricts the range of the dependent variable (desired number of children) to 0–10, potentially creating lower-bound censoring, which Tobit models can effectively handle (Li & Shao, 2022). Regression results are presented in Supplementary Table S6. We find that in both OLS and Tobit regressions, husbands’ traditional gender role conceptions remain significantly positively associated with wives’ fertility intentions (OLS: $B = 0.028$, $SE = 0.010$, $t = 2.915$, $p = 0.008$, 95% CI [0.008, 0.048]; Tobit: $B = 0.028$, $SE = 0.010$, $t = 2.917$, $p = 0.004$, 95% CI [0.009, 0.047]), while the relationship between wives’ traditional gender role conceptions and their own fertility intentions remains non-significant (OLS: $B = 0.014$, $SE = 0.014$, $t = 1.034$, $p = 0.311$, 95% CI [-0.014, 0.042]; Tobit: $B = 0.014$, $SE = 0.014$, $t = 1.035$, $p = 0.301$, 95% CI [-0.013, 0.041]), indicating that using different regression analyses does not alter our main findings.

3.3.3 Winsorization and Truncation Extreme values may reduce model robustness or even bias results. To exclude such effects, we refitted models after removing some extreme values and narrowing the sample range to test estimation robustness. Specifically, we applied right-side unilateral winsorization and truncation to the outcome variable “fertility intention” at the 1% level. Regression results in Supplementary Table S7 show that husbands’ traditional gender role conceptions remain significantly positively associated with wives’ fertility intentions (winsorization: $B = 0.013$, $SE = 0.004$, $z = 3.468$, $p = 0.001$, 95% CI [0.006, 0.020]; truncation: $B = 0.013$, $SE = 0.003$, $z = 3.734$, $p < 0.001$, 95% CI [0.006, 0.019]), while the relationship between wives’ traditional gender role conceptions and their own fertility intentions remains non-significant (winsorization: $B = 0.010$, $SE = 0.006$, $z = 1.595$, $p = 0.111$, 95% CI [-0.002, 0.022]; truncation: $B = 0.010$, $SE = 0.006$, $z = 1.632$, $p = 0.103$, 95% CI [-0.002, 0.022]), leaving conclusions unchanged.

3.4 Excluding Competing Hypotheses

We have tested Hypothesis 1 using multiple methods. However, a competing explanation remains: married individuals—regardless of gender—may rely more on their spouse’s gender role conceptions to guide their own fertility decisions. In other words, not only may husbands’ traditional gender role conceptions influence wives’ fertility intentions more strongly, but wives’ traditional gender role conceptions may also influence husbands’ fertility intentions more strongly. Therefore, it is necessary to test this competing hypothesis in the husband sample using similar regression analyses.

First, based on the original sample, we excluded 15 participants with missing

values for husbands' desired number of children and 18 participants with missing values for husbands' control variables, yielding 7,056 valid participants. Poisson regression on these 7,056 participants produced the results for Model 1 in Supplementary Table S8. We can see that in Model 1, husbands' traditional gender role conceptions are significantly positively associated with their own fertility intentions ($B = 0.027$, $SE = 0.005$, $z = 5.115$, $p < 0.001$, 95% CI [0.017, 0.038]), while the relationship between wives' traditional gender role conceptions and husbands' fertility intentions is not significant ($B = -0.010$, $SE = 0.006$, $z = -1.596$, $p = 0.111$, 95% CI [-0.022, 0.002]).

To ensure robustness and exclude potential sample differences, we conducted the same Poisson regression analysis on the wife sample corresponding to the 7,056 husbands, yielding results for Model 2 in Supplementary Table S8. We can see that in Model 2, husbands' traditional gender role conceptions are significantly positively associated with wives' fertility intentions ($B = 0.015$, $SE = 0.005$, $z = 3.123$, $p = 0.002$, 95% CI [0.006, 0.024]), while the relationship between wives' traditional gender role conceptions and their own fertility intentions is not significant ($B = 0.008$, $SE = 0.007$, $z = 1.261$, $p = 0.207$, 95% CI [-0.005, 0.021]).

Combining these results with baseline model findings, we observe that for wives' fertility intentions, wives' own traditional gender role conceptions have no significant effect, while husbands' traditional gender role conceptions have a significant effect. Conversely, for husbands' fertility intentions, husbands' own traditional gender role conceptions remain the key factor. This falsifies the competing hypothesis, demonstrating that wives' fertility intentions' dependence on husbands' gender role conceptions is asymmetric, providing strong support for our core hypothesis.

3.5 Testing the Mechanism

In traditional Chinese society, the "male breadwinner, female homemaker" division of labor dominates, potentially exacerbating gender status differences, restricting women's decision-making power in household affairs, and creating material and ideological dependence on husbands (Cheng, 2021). Thus, fertility dependence may stem from women's lack of decision-making power in household matters. Accordingly, we expect: (1) when husbands hold higher household decision-making power, their traditional gender role conceptions exert stronger influence on wives' fertility intentions; (2) conversely, when wives hold higher decision-making power, their own traditional gender role conceptions have more significant influence on their fertility intentions.

To test this analysis, we constructed a "household decision-maker" indicator covering five decision-making scenarios from the CFPS 2014 household relationship questionnaire: (1) "Who has the final say in household expenditure allocation?" ; (2) "Who has the final say in savings, investments, and insurance?" ; (3) "Who has the final say in buying a house?" ; (4) "Who has the final say in purchas-

ing high-priced consumer goods (e.g., refrigerators, air conditioners, furniture sets)?” ; and (5) “Who has the final say in children’s discipline?” This variable takes the value 0 if the wife is the primary decision-maker, 1 if the husband is the primary decision-maker, and 2 if someone else is the decision-maker. After excluding participants with missing values on any of the five questions, we obtained valid samples of 7,082, 7,062, 7,027, 7,065, and 7,075 participants for each scenario, respectively.

Group regression on these samples yielded results in Supplementary Tables S9-S11. We can see that in scenarios of household expenditures, investment/savings, home purchases, and high-value consumption, when husbands are decision-makers, fertility dependence is evident: husbands’ traditional gender role conceptions are significantly positively associated with wives’ fertility intentions (household expenditures: $B = 0.023$, $SE = 0.007$, $z = 3.182$, $p = 0.001$, 95% CI [0.009, 0.037]; investment/savings: $B = 0.022$, $SE = 0.006$, $z = 3.589$, $p < 0.001$, 95% CI [0.010, 0.034]; home purchase: $B = 0.021$, $SE = 0.007$, $z = 3.010$, $p = 0.003$, 95% CI [0.007, 0.035]; high-value consumption: $B = 0.021$, $SE = 0.009$, $z = 2.447$, $p = 0.014$, 95% CI [0.004, 0.039]), while wives’ traditional gender role conceptions have no significant effect (household expenditures: $B = -0.002$, $SE = 0.008$, $z = -0.274$, $p = 0.784$, 95% CI [-0.018, 0.014]; investment/savings: $B = -0.003$, $SE = 0.008$, $z = -0.375$, $p = 0.708$, 95% CI [-0.019, 0.013]; home purchase: $B = -0.002$, $SE = 0.008$, $z = -0.247$, $p = 0.805$, 95% CI [-0.017, 0.013]; high-value consumption: $B = -0.001$, $SE = 0.009$, $z = -0.058$, $p = 0.953$, 95% CI [-0.019, 0.018]). Conversely, when wives are decision-makers, fertility dependence disappears, and wives’ traditional gender role conceptions are significantly positively associated with their own fertility intentions (household expenditures: $B = 0.025$, $SE = 0.005$, $z = 5.062$, $p < 0.001$, 95% CI [0.015, 0.034]; investment/savings: $B = 0.023$, $SE = 0.007$, $z = 3.539$, $p < 0.001$, 95% CI [0.010, 0.036]; home purchase: $B = 0.027$, $SE = 0.009$, $z = 3.049$, $p = 0.002$, 95% CI [0.010, 0.045]; high-value consumption: $B = 0.016$, $SE = 0.007$, $z = 2.463$, $p = 0.014$, 95% CI [0.003, 0.030]), while husbands’ influence is not significant (household expenditures: $B = 0.004$, $SE = 0.006$, $z = 0.565$, $p = 0.572$, 95% CI [-0.009, 0.016]; investment/savings: $B = 0.004$, $SE = 0.008$, $z = 0.458$, $p = 0.647$, 95% CI [-0.012, 0.019]; home purchase: $B = -0.007$, $SE = 0.009$, $z = -0.693$, $p = 0.489$, 95% CI [-0.025, 0.012]; high-value consumption: $B = 0.006$, $SE = 0.011$, $z = 0.585$, $p = 0.559$, 95% CI [-0.015, 0.028]).

The child discipline scenario differs slightly: when husbands are decision-makers, fertility dependence is evident (husband: $B = 0.022$, $SE = 0.006$, $z = 3.698$, $p < 0.001$, 95% CI [0.010, 0.034]; wife: $B = 0.003$, $SE = 0.010$, $z = 0.256$, $p = 0.798$, 95% CI [-0.018, 0.023]); when wives are decision-makers, husbands’ traditional gender role conceptions have no significant effect on wives’ fertility intentions ($B = 0.009$, $SE = 0.008$, $z = 1.108$, $p = 0.268$, 95% CI [-0.007, 0.025]), and wives’ traditional gender role conceptions also have no significant effect ($B = 0.007$, $SE = 0.009$, $z = 0.790$, $p = 0.430$, 95% CI [-0.010, 0.024]). Therefore, while we do not observe fertility dependence, wives do not exhibit greater fertility auton-

omy either, which does not match our hypothesis. This may be because child discipline is a special decision-making scenario that does not involve money and thus cannot directly confer higher status on women. Moreover, in traditional Chinese family patterns, child discipline as an internal family matter is typically considered women's responsibility, so while it may somewhat alleviate women's fertility dependence, it does not grant them sufficient fertility autonomy. We will further discuss this issue in the Discussion section.

Overall, these results demonstrate that: (1) when husbands hold greater household decision-making power, fertility dependence is more pronounced; (2) conversely, when wives hold greater decision-making power, fertility dependence is substantially alleviated and may even transform into fertility autonomy. These findings indicate that household decision-making power can partially explain fertility dependence/autonomy, providing evidence for Hypothesis 2. Additionally, Supplementary Tables S9–S11 show that across all five decision-making scenarios, the number of samples where husbands are primary decision-makers is significantly higher than where wives are primary decision-makers, even in child discipline—traditionally considered women's responsibility—where husbands remain the primary decision-makers. This suggests that in China, husbands generally hold relatively higher household decision-making power, explaining why fertility dependence persists in our overall analysis despite many married women already possessing fertility autonomy.

3.6 Heterogeneity Analysis

3.6.1 Hukou Differences In China's hukou policy, the dual hukou system occupies a central position. Yang (2018) argues that agricultural hukou women's identity is dependent, while Xu and Huang (2018) find that traditional gender-based labor divisions may distort married women's labor behavior, reduce their income, and increase dependence on husbands, particularly among agricultural hukou women. Accordingly, we propose that fertility dependence based on household decision-making power may be more pronounced among agricultural hukou women. To test this hypothesis, we conducted group regression by wife's hukou type, with results shown in Supplementary Table S12. We find that in the non-agricultural hukou sample, fertility dependence disappears and wives exhibit greater fertility autonomy: the relationship between husbands' traditional gender role conceptions and wives' fertility intentions is not significant ($B = 0.010$, $SE = 0.010$, $z = 1.084$, $p = 0.279$, 95% CI $[-0.008, 0.029]$), while the relationship between wives' traditional gender role conceptions and their own fertility intentions is significantly positive ($B = 0.030$, $SE = 0.011$, $z = 2.853$, $p = 0.004$, 95% CI $[0.009, 0.051]$). Conversely, in the agricultural hukou sample, fertility dependence is significant: compared to wives' own traditional gender role conceptions ($B = 0.005$, $SE = 0.007$, $z = 0.698$, $p = 0.485$, 95% CI $[-0.008, 0.018]$), husbands' traditional gender role conceptions exert a more significant influence on wives' fertility intentions ($B = 0.016$, $SE = 0.006$, $z = 2.841$, $p = 0.004$, 95% CI $[0.005, 0.027]$). This provides preliminary evidence for

Hypothesis 3.

3.6.2 Regional Differences Following Shen et al. (2021) regarding the division of China's eastern, central, and western regions, we conducted group regression by region, with results shown in Supplementary Table S13. Results support Hypothesis 3: in the eastern region sample, the relationship between husbands' traditional gender role conceptions and wives' fertility intentions is not significant ($B = 0.017$, $SE = 0.009$, $z = 1.902$, $p = 0.057$, 95% CI [-0.001, 0.034]), while wives' traditional gender role conceptions have a significantly positive effect on their own fertility intentions ($B = 0.008$, $SE = 0.004$, $z = 1.971$, $p = 0.049$, 95% CI [0.00004, 0.016]), meaning fertility dependence disappears and wives exhibit greater fertility autonomy. In the central and western region sample, husbands' traditional gender role conceptions are significantly positively associated with wives' fertility intentions ($B = 0.012$, $SE = 0.005$, $z = 2.484$, $p = 0.013$, 95% CI [0.002, 0.021]), while wives' traditional gender role conceptions have no significant effect on their own fertility intentions ($B = 0.009$, $SE = 0.010$, $z = 0.843$, $p = 0.399$, 95% CI [-0.011, 0.029]), indicating the presence of fertility dependence.

3.6.3 Educational Differences We grouped participants by education level based on the control variable years of education: low education (≤ 6 years), medium education (7–12 years), and high education (≥ 13 years). Group regression results are shown in Supplementary Table S14. In the low education group, husbands' traditional gender role conceptions are significantly positively associated with wives' fertility intentions ($B = 0.023$, $SE = 0.007$, $z = 3.232$, $p = 0.001$, 95% CI [0.009, 0.036]), while wives' traditional gender role conceptions have no significant effect ($B = 0.001$, $SE = 0.008$, $z = 0.179$, $p = 0.858$, 95% CI [-0.015, 0.018]), indicating fertility dependence. In both medium and high education groups, husbands' traditional gender role conceptions have no significant effect on wives' fertility intentions (medium: $B = 0.006$, $SE = 0.005$, $z = 1.268$, $p = 0.205$, 95% CI [-0.003, 0.016]; high: $B = -0.010$, $SE = 0.017$, $z = -0.605$, $p = 0.545$, 95% CI [-0.042, 0.022]), while wives' traditional gender role conceptions show significant positive associations with their own fertility intentions, indicating fertility dependence disappears (medium: $B = 0.021$, $SE = 0.007$, $z = 3.213$, $p = 0.001$, 95% CI [0.008, 0.034]; high: $B = 0.060$, $SE = 0.020$, $z = 3.020$, $p = 0.003$, 95% CI [0.021, 0.099]), and wives exhibit greater fertility autonomy. These results provide supplementary evidence for Hypothesis 3.

3.6.4 Generational Differences Generation refers to a group of people who share a common location in the social development process and tend to have similar values and behavioral habits. Therefore, generational cohort analysis helps reveal the changing trends of a social phenomenon across different historical contexts (Hobcraft et al., 1982). Drawing on existing literature (Egri & Ralston, 2004; Yi et al., 2010) and China's specific social-historical context, this

study divides the sample into four generational cohorts based on wives' birth years: (1) Revolutionary Generation (born before 1949), (2) Planned Economy Generation (born 1950-1979), (3) Reform and Opening Generation (born 1980-1990), and (4) Modern Generation (born 1991-1998). We examined changing trends in fertility dependence across different generational cohorts of women through group regression, with results shown in Supplementary Table S15.

Regression results show that in the Revolutionary and Planned Economy Generation samples, husbands' traditional gender role conceptions are significantly positively associated with wives' fertility intentions (Revolutionary: $B = 0.036$, $SE = 0.011$, $z = 3.270$, $p = 0.001$, 95% CI [0.015, 0.058]; Planned Economy: $B = 0.014$, $SE = 0.005$, $z = 2.784$, $p = 0.005$, 95% CI [0.004, 0.023]), while wives' traditional gender role conceptions have no significant effect on their own fertility intentions (Revolutionary: $B = 0.009$, $SE = 0.016$, $z = 0.562$, $p = 0.574$, 95% CI [-0.022, 0.040]; Planned Economy: $B = 0.008$, $SE = 0.006$, $z = 1.175$, $p = 0.240$, 95% CI [-0.005, 0.020]), indicating fertility dependence. In the Reform and Opening Generation sample, the relationship between husbands' traditional gender role conceptions and wives' fertility intentions is not significant ($B = -0.004$, $SE = 0.011$, $z = -0.358$, $p = 0.720$, 95% CI [-0.026, 0.018]), and the relationship between wives' traditional gender role conceptions and their own fertility intentions is also not significant ($B = 0.006$, $SE = 0.020$, $z = 0.292$, $p = 0.770$, 95% CI [-0.033, 0.044]), indicating fertility dependence disappears but women have not yet fully achieved fertility autonomy. In the Modern Generation sample, the relationship between husbands' traditional gender role conceptions and wives' fertility intentions is not significant ($B = -0.007$, $SE = 0.016$, $z = -0.450$, $p = 0.653$, 95% CI [-0.038, 0.024]), while wives' traditional gender role conceptions are significantly positively associated with their own fertility intentions ($B = 0.064$, $SE = 0.020$, $z = 3.209$, $p = 0.001$, 95% CI [0.025, 0.103]), indicating fertility dependence disappears and wives exhibit greater fertility autonomy. These results not only provide strong evidence for Hypothesis 3 but also demonstrate the longitudinal changes in fertility dependence in China, offering a historical perspective for more nuanced understanding of this social phenomenon.

Finally, from a fertility perspective, focusing on women of childbearing age is obviously more practically meaningful. Therefore, we conducted further supplementary analysis based on the division of childbearing-age (age ≤ 49 at survey) vs. non-childbearing-age (age > 49) groups (complete results in Supplementary Table S16). Results show that fertility dependence mainly exists among non-childbearing-age populations, which is basically consistent with generational heterogeneity analysis results. Specifically: (1) The non-childbearing-age group ($n = 3,473$) includes all Revolutionary Generation (born before 1949) and some Planned Economy Generation (born 1950-1979) women. For these generations, fertility intentions are primarily influenced by husbands' traditional gender role conceptions ($B = 0.021$, $SE = 0.008$, $z = 2.748$, $p = 0.006$, 95% CI [0.006, 0.036]), while wives' own traditional gender role conceptions remain non-significant ($B = 0.008$, $SE = 0.009$, $z = 0.915$, $p = 0.360$, 95% CI [-0.009, 0.026]). (2) The

childbearing-age group ($n = 3,616$) includes all Reform and Opening Generation (born 1980-1990) and Modern Generation (born 1991-1998), plus some Planned Economy Generation (born 1950-1979) women. For these generations, husbands' traditional gender role conceptions show negative non-significant effects (Reform and Opening and Modern Generations) and positive significant effects (Planned Economy Generation), which offset each other to produce a non-significant coefficient ($B = 0.007$, $SE = 0.007$, $z = 1.031$, $p = 0.303$, 95% CI $[-0.006, 0.021]$). Wives' own traditional gender role conceptions only show significant positive effects in the Modern Generation, but due to its small sample size ($n = 147$), the combined effect remains non-significant ($B = 0.010$, $SE = 0.009$, $z = 1.152$, $p = 0.249$, 95% CI $[-0.007, 0.027]$). This suggests that overall, among married women of childbearing age, although fertility dependence has disappeared, fertility autonomy is not yet clearly evident, indicating a transitional stage. (3) We further conducted three heterogeneity analyses for the childbearing-age group based on: hukou (agricultural vs. non-agricultural; see Supplementary Table S17), region (eastern vs. central/western; see Supplementary Table S18), and education (low vs. medium vs. high; see Supplementary Table S19). Results summarize as follows: Fertility dependence among childbearing-age women mainly exists in the low education group ($n = 1,583$; husband: $B = 0.026$, $SE = 0.012$, $z = 2.129$, $p = 0.033$, 95% CI $[0.002, 0.050]$; wife: $B = -0.011$, $SE = 0.012$, $z = -0.889$, $p = 0.374$, 95% CI $[-0.034, 0.013]$). Fertility autonomy exists among non-agricultural hukou holders ($n = 729$; husband: $B = -0.004$, $SE = 0.010$, $z = -0.428$, $p = 0.669$, 95% CI $[-0.023, 0.015]$; wife: $B = 0.049$, $SE = 0.012$, $z = 3.977$, $p < 0.001$, 95% CI $[0.025, 0.074]$), eastern region residents ($n = 1,385$; husband: $B = -0.002$, $SE = 0.008$, $z = -0.222$, $p = 0.825$, 95% CI $[-0.018, 0.015]$; wife: $B = 0.023$, $SE = 0.010$, $z = 2.350$, $p = 0.019$, 95% CI $[0.004, 0.042]$), medium education group ($n = 1,799$; husband: $B = -0.004$, $SE = 0.006$, $z = -0.652$, $p = 0.514$, 95% CI $[-0.015, 0.008]$; wife: $B = 0.023$, $SE = 0.007$, $z = 3.049$, $p = 0.002$, 95% CI $[0.008, 0.037]$), and high education group ($n = 233$; husband: $B = -0.009$, $SE = 0.018$, $z = -0.528$, $p = 0.598$, 95% CI $[-0.045, 0.026]$; wife: $B = 0.060$, $SE = 0.024$, $z = 2.558$, $p = 0.011$, 95% CI $[0.014, 0.107]$). These findings indicate that, compared to other factors, lower education levels may particularly significantly affect fertility dependence among childbearing-age women. This discovery has important practical implications, suggesting that improving education levels may be one of the most effective pathways to reduce fertility dependence, promote fertility autonomy, and thereby advance gender equality.

3.7 Supplementary Analysis Using CFPS 2022 Data

While the above analyses have largely revealed fertility dependence/autonomy among Chinese married women, two limitations remain. First, the analyses are primarily based on 2014 data and may not accurately reflect current realities. Second, although desired number of children is a widely used fertility intention indicator, some scholars argue that this measure may capture fertility attitudes rather than fertility intentions (Chen et al., 2024), and thus may not be a good

predictor of actual fertility behavior. In contrast, fertility plans are more effective predictors of near-term fertility behavior (Zheng, 2014). Considering these points, we used CFPS 2022 data for further analysis to enhance the reliability of our conclusions. This analysis focuses on married women of all ages who participated in both the 2014 and 2022 CFPS surveys with unchanged spouse IDs. Predictor variables are husbands' and wives' traditional gender role conceptions from CFPS 2014; control variable selection, fixed effects control, and standard error clustering in regression equations remain consistent with previous analyses; the outcome variable is fertility plan, measured by the dichotomous item from CFPS 2022 "Do you plan to have a child in the next two years? (No = 0; Yes = 1)," which is closer to the behavioral level.

The data cleaning process for this section proceeded as follows. First, using two matching methods—husband' s personal ID matched to wife' s spouse ID, and wife' s personal ID matched to husband' s spouse ID—we obtained 11,983 and 11,984 matched couple datasets, respectively, designated as Database 1 and Database 2. These two databases were then one-to-one matched using the wife' s personal ID, excluding 2 and 3 unmatched anomalous cases from Database 1 and Database 2, respectively, yielding 11,981 matched couples. Based on this, we sequentially excluded 7,309 participants who could not be matched with the wife sample from our baseline regression model, 1,367 participants with anomalous outcome variables (fertility plans), 4 participants with changed spouse IDs, 2,390 participants with missing control variables (detailed later), resulting in 911 participants. Additionally, in the logistic model, because the outcome variable values (0 or 1) were identical across participants in some provinces, Stata automatically excluded these data. Specifically, participants from Beijing, Tianjin, Heilongjiang, Shanghai, Jiangsu, Anhui, Fujian, Jiangxi, Hubei, Hunan, Chongqing, Guizhou, Yunnan, Shaanxi, Gansu, Qinghai, and Xinjiang were excluded, totaling 356 participants. Ultimately, we obtained 555 valid participants.

Given that the outcome variable (wife' s fertility plan) is dichotomous, this section uses logistic regression models to verify the existence of fertility dependence at the behavioral level among married women. It is important to note that due to the large span between 2014 and 2022 survey years, the questioning method for personal income changed in 2022. Therefore, we selected annual wage income from all jobs after tax as the personal income variable. Regarding hukou, compared to 2014, a new "resident hukou" category was added in 2022. This is because, according to the State Council' s Guofa [2014] No. 25 document *Opinions on Further Promoting Hukou System Reform*, the distinction between agricultural and non-agricultural hukou and related hukou types such as blue-stamp hukou was abolished, with all being uniformly registered as resident hukou. However, response times to this reform varied across provinces, resulting in three hukou types in the survey: non-agricultural, agricultural, and resident. The definitions of other control variables remain consistent with the 2014 CFPS database. Regression results show that husbands' traditional gender role conceptions are significantly positively associated with wives' fertility plans

($B = 0.769$, $SE = 0.256$, $z = 3.007$, $p = 0.003$, 95% CI [0.268, 1.270]), while the relationship between wives' traditional gender role conceptions and their own fertility plans is not significant ($B = -0.293$, $SE = 0.200$, $z = -1.466$, $p = 0.143$, 95% CI [-0.686, 0.099]). Complete results are provided in Supplementary Table S20.

These results indicate that fertility dependence may be a relatively stable social phenomenon, as husbands' traditional gender role conceptions in 2014 significantly influence wives' fertility plans in 2022, supporting the long-term existence of fertility dependence. Of course, this phenomenon only holds at the aggregate level and is moderated by macro- and micro-level factors such as region, era, education, and hukou, as discussed previously.

4 Discussion

Unlike previous studies that primarily focused on individual perspectives of women's own gender role conceptions (e.g., Hu & Lin, 2020; Jiang, 2022; Li & Li, 2024; Li et al., 2024; Lappegård et al., 2021; McDonald, 2000; Neyer et al., 2013), this study adopts a relationship-oriented perspective, emphasizing the influence of husbands' gender role conceptions on wives' fertility intentions, and proposes the concepts of fertility dependence and fertility autonomy. Based on CFPS 2014 data analysis, we find that women from earlier generations, with lower education levels, residing in central and western regions, or holding agricultural hukou exhibit clear fertility dependence—their fertility intentions are primarily influenced by husbands' traditional gender role conceptions rather than their own. In contrast, women from later generations, with higher education, residing in eastern regions, or holding non-agricultural hukou demonstrate some degree of fertility autonomy, where their fertility decisions are more driven by their own gender role conceptions and husbands' influence weakens. This finding suggests that neglecting husbands' factors may lead to incomplete conclusions when examining women's fertility decisions, and in this sense, our study provides new insights for understanding women's fertility decision-making. Moreover, this study reveals that gender inequality is not only reflected in unequal resource possession but also, as gender status theory suggests (Ridgeway, 2001; Steyn & White, 2011), deeply rooted in unconscious biases held by both men and women—that women should rely on men's conceptions to make decisions related to their own interests. Although surveys on Chinese women's social status indicate significant improvements in women's rights and social status, in the critical domain of childbearing, many married women still largely depend on their husbands' beliefs and attitudes to make fertility decisions, and this phenomenon shows strong continuity, as verified by supplementary analysis of CFPS 2022 data. This study offers a new theoretical perspective for understanding gender equality and women's rights protection.

This study further finds that household decision-making power partially explains married women's fertility patterns. Based on CFPS 2014 data analysis, we find that fertility dependence or autonomy largely depends on the balance of eco-

conomic resources and power between spouses. When husbands hold greater household decision-making power, women's fertility intentions are more influenced by husbands' gender role conceptions; conversely, when women hold decision-making power, this dependence effect disappears and may even transform into greater fertility autonomy, where fertility decisions are primarily driven by their own gender role conceptions.

Notably, in the child discipline scenario, women holding household decision-making power alleviates fertility dependence to some extent, but women do not achieve fertility autonomy, as regression results show that neither women's nor husbands' gender role conceptions significantly affect women's fertility intentions. While this result may seem inconsistent with our theory at first glance, careful consideration reveals that it actually corroborates our argument from a different angle. Unlike scenarios such as savings, investments, and home purchases, "assisting husbands and educating children" has long been considered married women's responsibility and does not directly bring additional income to the family. Therefore, we speculate that only by mastering household decisions directly related to economic resources can women achieve fertility autonomy. For example, decision-making power in housework may not bring women fertility autonomy or even alleviate fertility dependence, because traditional conceptions do not recognize the economic value of housework. Given that housework remains primarily performed by women (Xu & Huang, 2018), enhancing social recognition and economic value of housework could to some extent bring women more equal family status and greater decision-making power, thereby further dissolving fertility dependence. In fact, government departments have already noticed this issue; for instance, the *Civil Code of the People's Republic of China* newly affirms the economic value of housework, and our findings provide scientific evidence for this policy.

Heterogeneity analyses based on hukou, region, education, and generation reveal that married women's fertility dependence is not a homogeneous social phenomenon but shows significant social stratification and structural differences. Specifically, this fertility dependence is more pronounced among women with agricultural hukou, residing in central and western regions, with lower education levels, or from earlier generations. This suggests that women's empowerment movements should pay greater attention to differences across social groups when promoting women's fertility autonomy, thereby developing more targeted policies and action strategies. First, women with agricultural hukou are often subject to stronger traditional family conceptions and social pressures, where husbands have more significant say in household decision-making (Cheng, 2021). In these contexts, women's ability to autonomously decide on childbearing is clearly weakened. Therefore, women's empowerment movements should pay special attention to gender equality issues in rural areas, promote local gender awareness enhancement, and strengthen women's discourse power on fertility issues through education and community support mechanisms. Second, women living in central and western regions exhibit relatively prominent fertility dependence due to these regions' relatively backward economic devel-

opment levels. Therefore, women's empowerment movements in these regions require more resource investment to ensure women can access key resources such as education, employment, and health security, thereby reducing their dependence on spouses. Similar research shows that granting women more social and economic rights can significantly enhance their decision-making power within families (Tao, 2012; Zheng & Zi, 2024). Third, education level's impact on women's fertility autonomy cannot be ignored. Women with lower education levels often depend more on husbands in fertility decisions, while highly educated women, possessing stronger economic independence and social capital, can enjoy greater initiative in family fertility decisions. Therefore, women's empowerment movements should pay special attention to improving educational opportunities and social status for less-educated women, granting them more autonomy in fertility issues. In summary, women's empowerment movements should be strategically focused, particularly targeting women with agricultural hukou, living in central and western regions, with lower education levels, or from earlier generations. These women face more complex social structural constraints on fertility issues, and empowerment movements need to promote their equal decision-making power and greater autonomy in families and society through multi-dimensional social policy support, educational resource improvement, and gender awareness education.

Given China's current low-fertility atmosphere, it is necessary to examine the relationship between fertility dependence and fertility intentions. Indeed, substantial evidence shows a negative association between egalitarian gender conceptions and fertility intentions (Hu & Lin, 2020; Jiang, 2022; Li & Li, 2024; Li et al., 2024; Kaufman, 2000; Miller & Pasta, 1995). In other words, from a purely utilitarian perspective of increasing fertility intentions, promoting women's fertility dependence seems worth considering. However, two reasons prevent us from doing so: First, fertility autonomy itself is a worthwhile social goal that does not need to be attached to any utilitarian purpose. Second, the relationship between women's fertility autonomy and fertility intentions may not be linear but U-shaped. Goldscheider et al. (2015) divide the gender revolution into two stages: the first stage is the public sphere stage, including increasing women's access to education and employment; the second stage is the private sphere stage, where men begin to share more housework and child-rearing responsibilities, thereby alleviating women's parenting burdens. China may have only completed the first stage of the gender revolution—in other words, we are still on the left side of the U-shaped curve, leading to lower fertility rates (Cotter et al., 2011). On the right side of the curve, improvements in women's family status and fertility autonomy will be accompanied by rising fertility rates. Research conducted in Austria (Tazi-Preve et al., 2004) and Eastern European countries (Lappegård et al., 2021) provides evidence for this view. Based on these reasons, we believe the relationship between fertility dependence/autonomy and fertility intentions requires further exploration.

The shift from fertility dependence to fertility autonomy among married women revealed in this study may also be related to China's social modernization

process and the rise of individualistic values. Collectivist values typically emphasize personality traits such as modesty and obedience, while individualism places greater importance on independence and confidence (Huang et al., 2018). In fertility patterns, this value shift may manifest as fertility autonomy gradually replacing fertility dependence. However, Wu et al. (2024) point out that the development of individualism in China over the past four decades has primarily exhibited utilitarian characteristics oriented toward wealth and enjoyment, rather than rationalistic orientations emphasizing independence and autonomy. Therefore, the relationship between changes in women's fertility patterns and value evolution remains unclear and requires further investigation.

Before concluding, we would like to note several limitations and future research directions. First, this study primarily relies on database data to explore relationships between variables, which means our conclusions still lack sufficient causal evidence. For example, although the influence of gender role conceptions on fertility intentions is supported by numerous studies, reverse causality seems equally plausible: to avoid cognitive dissonance, pregnant women may become more supportive of traditional gender roles, while women who decide against childbearing may support more modern gender roles. Given the lack of a well-developed manipulation method for gender role conceptions in academia, designing an effective experimental manipulation in future research would greatly enhance the robustness and reliability of existing conclusions. Second, our outcome variables primarily use self-reported measures, preventing us from testing our conclusions at the behavioral level. Although evidence suggests high positive correlation between self-reported behavioral intentions and actual behavior (Kormos & Gifford, 2014), further research examining our conclusions at the actual behavioral level would enrich existing literature. Third, constrained by CFPS data, this study primarily uses desired number of children to measure fertility intentions. While this indicator is widely used in existing literature (Hou et al., 2014), some scholars argue it reflects individuals' subjective perceptions of fertility norms (Feng, 2017) and thus may only indirectly measure fertility intentions. Therefore, caution is needed when interpreting and applying our conclusions, and future research should explore more precise measurement tools to verify our findings' robustness. Finally, the small effect sizes of our main findings are also a limitation. However, as Ma et al. (2024) and Funder and Ozer (2019) point out, small effects may accumulate over time, across situations, or at the individual level and ultimately produce widely impactful results, especially in a society with a large population like China, where even small individual-level effects can have significant social impacts after accumulation. Future research could further examine how these effects vary across different contexts and time dimensions to deepen understanding of this phenomenon.

5 Conclusion

This study reaches the following conclusions: (1) Among Chinese married women, there exists a certain degree of fertility dependence, whereby husbands'

traditional gender role conceptions exert a more significant influence on wives' fertility intentions than wives' own conceptions; (2) The degree of fertility dependence varies by individual and social characteristics, being more pronounced among women from earlier generations, with lower education, agricultural hukou, and residing in central and western China, while women from later generations, with higher education, non-agricultural hukou, and residing in eastern China exhibit greater fertility autonomy; (3) Household decision-making power is an important mechanism influencing women's fertility patterns, with women's greater decision-making power in economic-related household affairs helping to enhance their fertility autonomy.

References

- Balsmeier, B., Buchwald, A., & Stiebale, J. (2014). Outside directors on the board and innovative firm performance. *Research Policy*, *43*(10), 1800-1815.
- Bianchi, S. M., & Milkie, M. A. (2010). Work and family research in the first decade of the 21st century. *Journal of Marriage and Family*, *72*(3), 705-725.
- Cheng, C., Wang, Y. X., & Bian, Y. J. (2015). Gender-earning differentials in China's urban labor market: A social capital perspective. *Population Research*, *39*(2), 3-16.
- Cheng, J. M. (2021). Chinese clan culture and married female labor force participation. *China Economic Studies*, (04), 133-145.
- Chen, S. J., Shen, J. H., Jiang, Q. J., & Yang, S. S. (2024). Underestimating others' fertility attitudes and behaviors hinders the fertility intentions of childless individuals in Gen Z. *Acta Psychologica Sinica*, *56*(6), 759-776.
- Chen, W. M., & Wang, Y. R. (2024). Mediating role of fertility motivation in the impact of internet use on fertility intentions. *Population Research*, *48*(2), 44-59.
- Cotter, D., Hermsen, J. M., & Vanneman, R. (2011). The end of the gender revolution? Gender role attitudes from 1977 to 2008. *American Journal of Sociology*, *117*(1), 259-89.
- Dohmen, T., Falk, A., Huffman, D., & Sunde, U. (2012). The intergenerational transmission of risk and trust attitudes. *The Review of Economic Studies*, *79*(2), 645-677.
- Egri, C. P., & Ralston, D. A. (2004). Generation cohorts and personal values: A comparison of China and the United States. *Organization Science*, *15*(2), 210-220.
- Esping-Andersen, G. (2009). *Incomplete revolution: Adapting welfare states to women's new roles*. Cambridge, UK: Polity.
- Evans, H. (2021). "Patchy Patriarchy" and the shifting fortunes of the CCP's promise of gender equality since 1921. *The China Quarterly*, *248*(S1), 95-115.

- Feng, X. T. (2017). The fertility desire of Chinese people: How much do we know exactly? *Journal of Social Sciences*, (8), 59-71.
- Funder, D. C., & Ozer, D. J. (2019). Evaluating effect size in psychological research: Sense and nonsense. *Advances in Methods and Practices in Psychological Science*, 2(2), 156-168.
- Goldin, C. (1994). Understanding the gender gap: An economic history of American women in equal employment opportunity. In P. Burstein (Ed.), *Labor market discrimination and public policy* (pp. 17-26). Piscataway, NJ: Aldine Transaction.
- Goldscheider, F., Bernhardt, E., & Lappegård, T. (2015). The gender revolution: A framework for understanding changing family and demographic behavior. *Population and Development Review*, 41(2), 207-239.
- Guo, Z. G., & Wu, X. W. (2006). Application of Poisson regression in fertility study. *Chinese Journal of Population Science*, 4(7), 2-15+95.
- Hobcraft, J., Menken, J., & Preston, S. (1982). Age, period, and cohort effects in demography: A review. *Population Index*, 48, 4-43.
- Hou, J. W., Huang, S. L., Xin, Z. Q., Sun, L., Zhang, H. C., & Dou, D. H. (2014). A change in the desired fertility of the Chinese population: 1980-2011. *Social Sciences in China*, (4), 78-97.
- Huang, Z. H., Jing, Y. M., Yu, F., Gu, R. L., Zhou, X. Y., & Cai, H. J. (2018). Increasing individualism and decreasing collectivism? Cultural and psychological change around the globe. *Advances in Psychological Science*, 26(11), 2068-2080.
- Hu, R., & Lin, B. B. (2020). Concept of gender equality and female fertility desire. *Seeker*, (04), 142-148.
- Hu, Y., & Scott, J. (2016). Family and gender values in China: Generational, geographic, and gender differences. *Journal of Family Issues*, 37(9), 1267-1293.
- Hwang, I. (2020). The effect of collaborative innovation on ICT-based technological convergence: A patent-based analysis. *PloS ONE*, 15(2), e0228616.
- Jacka, T. (2014). *Rural women in urban China: Gender, migration, and social change*. London, UK: Routledge.
- Jiang, C. Y. (2022). Gender role concept and fertility intention of people of childbearing age—Analysis based on the perspective of gender difference and social change. *Lanzhou Academic Journal*, (05), 92-104.
- Ji, H., Yan, J., & Guo, W. X. (2022). How and when does occupational stigma promote intent to leave? The mediation effect of family implicated stigma and the moderating effect of family involvement. *Acta Psychologica Sinica*, 54(2), 182-191.

- Ji, Y., Wu, X., Sun, S., & He, G. (2017). Unequal care, unequal work: Toward a more comprehensive understanding of gender inequality in post-reform urban China. *Sex Roles, 77*, 765–778.
- Kaufman, G. (2000). Do gender role attitudes matter? Family formation and dissolution among traditional and egalitarian men and women. *Journal of Family Issues, 21*(1), 128–144.
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2020). *Dyadic data analysis*. New York, NY: Guilford Publications.
- Kjøllestad, M. K., Smith, G. D., Ariansen, I., Kinge, J. M., Degerud, E., & Næss, Ø. (2018). The association between BMI and mortality using early adulthood BMI as an instrumental variable for midlife BMI. *Scientific Reports, 8*, 11499.
- Kleibergen, F., & Paap, R. (2006). Generalized reduced rank tests using the singular value decomposition. *Journal of Econometrics, 133*(1), 97–126.
- Kormos, C., & Gifford, R. (2014). The validity of self-report measures of pro-environmental behavior: A meta-analytic review. *Journal of Environmental Psychology, 40*, 359–371.
- Lappegård, T., Neyer, G., & Vignoli, D. (2021). Three dimensions of the relationship between gender role attitudes and fertility intentions. *Genus, 77*, 1–26.
- Li, B. L., & Shao, S. (2022). If you don't live in peace, you don't want to have children: A study on the housing situation and the fertility desire of young people. *China Youth Study, (3)*, 53–62+104.
- Lindsey, L. L. (2020). *Gender: Sociological perspectives*. London, UK: Routledge.
- Liu, D. Z., Huang, H. X., Jia, F. Q., Gong, Q., Huang, X., & Li, X. (2011). A new Sex-Role Inventory (CSRI-50) indicates changes of sex role among Chinese college students. *Acta Psychologica Sinica, 43*(6), 639–649.
- Li, W. X., Yang, X. J., & Yang, X. Y. (2021). Child care and the desire to have the second child: An empirical analysis based on the 2017 national fertility survey. *Population Research, 45*(05), 64–78.
- Li, X. H., & Guo, J. Q. (2024). Intergenerational living distance and adult children's subjective well-being. *Chinese Journal of Population Science, 38*(5), 98–112.
- Li, Y., & Li, C. A. (2024). The impact of gender role attitudes on fertility intentions following the implementation universal two-child policy. *Northwest Population Journal*. <https://link.cnki.net/urlid/62.1019.C.20240612.2229.002>
- Li, Z. D, Jiang, J. M., & Yin, H. Y. (2024). A study on the influence of gender role attitudes on fertility intention—Empirical analysis based on CGSS data. *Academic Journal of Jinyang, (3)*, 34–48.

- Lu, J. H., & Sun, Y. (2024). The impact of education-job matching on fertility intention of young adults. *Chinese Journal of Population Science*, (03), 66-80.
- Ma, A., Paek, J. J., Liu, F., & Kim, J. Y. (2024). Threats to personal control fuel similarity attraction. *Proceedings of the National Academy of Sciences of the United States of America*, 121(43), e2321189121.
- McDonald, P. (2000). Gender equity in theories of fertility transition. *Population and Development Review*, 26(3), 427-439.
- Miller, W. B., & Pasta, D. J. (1995). Behavioral intentions: Which ones predict fertility behavior in married couples? *Journal of Applied Social Psychology*, 25(6), 530-555.
- Neyer, G., Lappegård, T., & Vignoli, D. (2013). Gender equality and fertility: Which equality matters? *European Journal of Population*, 29, 245-272.
- Okun, B. S., & Raz-Yurovich, L. (2019). Housework, gender role attitudes, and couples' fertility intentions: Reconsidering men' s roles in gender theories of family change. *Population and Development Review*, 45(1), 169-196.
- Qing, S. S. (2018). Intergenerational transmission of attitudes toward gender role in China. *Chinese Journal of Population Science*, (6), 80-91.
- Ridgeway, C. L. (2001). Gender, status, and leadership. *Journal of Social Issues*, 57(4), 637-655.
- Shen, X. B., Chen, Y., & Lin, B. Q. (2021). The impacts of technological progress and industrial structure distortion on China' s energy intensity. *Economic Research Journal*, (02), 157-173.
- Shi, C. L. (2020). The impact of land transfer on rural household income gap: Exacerbation or alleviation? *Research on Economics and Management*, 41(12), 79-92.
- Steyn, E., & White, K. J. (2011). Navigating the 'invisible nets' : Challenges and opportunities for women in traditionally male-dominated South Asian newsrooms. *Asian Journal of Communication*, 21(4), 409-426.
- Tao, T. (2012). Analysis of influencing factors in rural women' s right in significant family decisions. *Collection of Women' s Studies*, (05), 17-22+35.
- Tazi-Preve, I. M., Bichlbauer, D., & Goujon, A. (2004). Gender trouble and its impact on fertility intentions. *Finnish Yearbook of Population Research*, 5-24.
- Wan, F., & Chen, S. J. (2024). Subjective social class positively predicts residents' fertility intentions. *Population and Development*, (02), 26-38.
- Wang, J. X., Zhou, Y. N., & Liu, X. L. (2020). Information, trust and confidence: Mechanism for constructing the risk community. *Sociological Study*, 35(4), 25-45+241-242.

- Wang, P., & Wu, Y. X. (2019). Socioeconomic status, gender inequality and gender roles. *Sociological Review of China*, 7(2), 55-70.
- Wang, R. Q. (2016). Does social endowment mitigate people's responsibility requirements for their adult children? An empirical study based on rural residents in China. *Population and Economics*, (05), 105-113.
- Wang, T. Y., & Peng, X. B. (2015). The impact of social security on fertility desire: Evidence from new rural cooperative medical scheme. *Economic Research Journal*, (02), 103-117.
- Wu, S. T., Wang, Y. L., & Peng, K. P. (2024). More utilitarian and less rational? Social change and two types of individualism over the last 40 years in China. *Acta Psychologica Sinica*, 56(7), 911-925.
- Xu, J., & Huang, Y. N. (2018). Gender identity, marriage and labor behavior within households. *Economic Research Journal*, (4), 138-152.
- Xu, K., Hu, D. W., & Liu, Y. (2022). The family planning policy, cost socialization and fertility ratio. *Journal of Guizhou University of Finance and Economics*, 40(2), 69-78.
- Yang, G. C., & Yang, J. D. (2013). Daughter-supporting mechanism for the aged in the gender perspective. *Journal of Yunnan Nationalities University (Social Sciences)*, 30(01), 55-62.
- Yang, H. (2018). As the reformer: Dependent identity and outsider features of young rural female. *Journal of Chinese Youth Social Science*, 37(5), 60-69.
- Yang, X. L., & Zhong, R. Y. (2023). The effects of household income level and gender perception on the intention to have another child. *Finance & Economics*, (04), 137-148.
- Ye, H., & Wu, X. G. (2011). Fertility decline and the trend in educational gender inequality in China. *Sociological Study*, 5, 153-177.
- Yi, X., Ribbens, B., & Morgan, C. N. (2010). Generational differences in China: Career implications. *Career Development International*, 15(6), 601-620.
- Zhang, Y. Q., Lu, Y., & Li, L. Y. (2021). Effects of big data on firm value in China: Evidence from textual analysis of Chinese listed firms' annual reports. *Economic Research Journal*, (12), 42-59.
- Zhao, F. Q., Hu, S. Y., Chen, Y., & Zhu, H. Q. (2024). Research on mechanism of entrepreneurial narrative on entrepreneurial performance: The role of organizational ambidexterity, resource acquisition and rhetorical strategies. *Nankai Business Review*, 27(5), 4-17.
- Zhao, J., & Zuo, B. (2005). Situation and interaction: Interpersonal interdependence and its model. *Advances in Psychological Science*, 13(6), 828-835.
- Zheng, G. H., & Zi, Y. L. (2024). Self-empowerment through skilled labour: A wig factory in Henan's Xuchang city. *Collection of Women's Studies*, (05), 29-

40.

Zheng, Z. Z. (2014). Measurement and application of fertility intention. *Chinese Journal of Population Science*, (6), 15-25.

Zhuang, T. Y., Li, G. J., & Luo, J. C. (2014). Is there a neighborhood effect in rural households' decision-making on digital finance use? *Chinese Rural Economy*, (08), 125-144.

Zhu, L., Huang, B. L., Liu, C. J., & Peng, G. (2024). The impact of subjective well-being on fertility intention: An empirical study based on CGSS data. *Population Research*, 48(01), 118-132.

Supplementary Tables

Table S1 Descriptive Statistics for Control Variables (N = 7,089)

Variable	Mean	SD	Min	Max
Personal annual income	9.86	1.12	0	13.82
Years of education	8.92	4.31	0	19
Total family property value	11.73	1.89	0	18.42
Household financial assets	7.45	3.21	0	15.68
Number of household members	4.12	1.35	2	10

Table S2 Baseline Model Regression Results

Variable	Coefficient
Traditional gender role conceptions (husband)	0.014**
Traditional gender role conceptions (wife)	0.008
Personal annual income	-0.005*
Years of education	0.089***
Total family property value	0.003
Household financial assets	-0.004
Number of household members	0.012***
Provincial fixed effects	Yes
Pseudo R ²	0.045

Note: p < 0.05, ** p < 0.01, *** p < 0.001.*

Table S3 Exploratory Analysis Based on Multinomial Logistic Regression (N = 7,089)

Variable	Desired children = 0	Desired children = 2	Desired children \geq 3
Traditional gender role conceptions (husband)	0.241***	-0.001	0.022*
Traditional gender role conceptions (wife)	-0.646***	0.085	-0.072**
Personal annual income	0.577*	0.460***	0.947***
Years of education	0.027**	0.127**	0.029***

Note: Regression results use “desired children = 1” as reference group and control for provincial fixed effects; $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; Pseudo $R^2 = 0.180$.*

Table S4 Instrumental Variable Regression Results

Variable	IV-Poisson Stage		2SLS Stage	
	1	2	1	2
IV	0.421***	—	0.421***	—
Traditional gender role conceptions (husband)	—	0.154**	—	0.346*
Traditional gender role conceptions (wife)	0.251***	-0.028	0.251***	-0.071
Personal annual income	-0.009***	-0.009***	-0.013***	-0.013***

Variable	IV-Poisson Stage 1	IV-Poisson Stage 2	2SLS Stage 1	2SLS Stage 2
Years of educa- tion	0.003*	0.006*	0.006*	0.098*
Total family property value	-0.006*	-0.006*	-0.005*	-0.005*
Household financial assets	-0.005*	-0.005*	-0.066*	-0.066*
Number of house- hold mem- bers	0.083***	0.203***	0.006***	0.006***
Kleibergen- Paap rk LM statistic	—	7.857** [0.005]	—	—
Kleibergen- Paap rk Wald F statistic	—	98.479 {16.380}	—	—
Provincial fixed effects	Yes	Yes	Yes	Yes
Centered R ² (Stage 2)	—	—	—	0.124

*Note: The 2SLS model is implemented using Stata 17's external command ivreghdfe, which only reports Centered R² for Stage 2; [] contains p-value for LM statistic; { } contains Stock-Yogo weak IV critical value of 16.38; p < 0.05, ** p < 0.01, *** p < 0.001.**

Table S5 Robustness Check Using Alternative Measurement Methods

Variable	Principal Factor	Principal Component
Traditional gender role conceptions factor score (husband)	0.015**	0.012**
Traditional gender role conceptions factor score (wife)	0.009	0.008
Personal annual income	-0.005*	-0.005*
Years of education	0.089***	0.089***
Provincial fixed effects	Yes	Yes
Pseudo R ²	0.045	0.045

Note: p < 0.05, ** p < 0.01, *** p < 0.001.*

Table S6 Robustness Check Using Alternative Econometric Models

Variable	OLS	Tobit
Traditional gender role conceptions (husband)	0.028**	0.028**
Traditional gender role conceptions (wife)	0.014	0.014
Personal annual income	-0.005*	-0.005*
Years of education	0.210***	0.210***
Provincial fixed effects	Yes	Yes
R ² /Pseudo R ²	0.089 (Adj-R ²)	0.089

Note: p < 0.05, ** p < 0.01, *** p < 0.001; first column shows Adj-R², second column shows Pseudo R².*

Table S7 Robustness Check Using Winsorization and Truncation

Variable	Winsorization	Truncation
Traditional gender role conceptions (husband)	0.013***	0.013***
Traditional gender role conceptions (wife)	0.010	0.010
Personal annual income	-0.004*	-0.004*
Years of education	0.078***	0.069***
Provincial fixed effects	Yes	Yes
Pseudo R ²	0.044	0.041

Note: Sample size $N = 7,053$ after right-side unilateral truncation at 1% level; $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table S8 Test of Competing Hypothesis

Variable	Model 1 (Outcome: Husband' s Fertility Intention)	Model 2 (Outcome: Wife' s Fertility Intention)
Traditional gender role conceptions (husband)	0.027***	0.015**
Traditional gender role conceptions (wife)	0.010	0.008
Personal annual income	0.010**	-0.005*
Years of education	0.087***	0.089***
Provincial fixed effects	Yes	Yes
Pseudo R ²	0.052	0.045

Note: Model 1 sample excludes 15 participants with missing husband' s desired children and 18 with missing husband control variables, yielding 7,056 valid participants (husbands); Model 2 uses the corresponding wife sample for these 7,056 husbands; $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table S9 Fertility Dependence/Autonomy by Household Expenditure and Investment/Savings Decision-Making Power

Variable	Expenditure: Husband	Expenditure: Wife	Investment: Husband	Investment: Wife
Traditional gender role concep- tions (hus- band)	0.023**	0.004	0.022***	0.004
Traditional gender role concep- tions (wife)	-0.002	0.025***	-0.003	0.023***
Personal annual income	-0.004*	-0.005*	-0.005*	-0.006*
Years of edu- cation	0.093***	0.098***	0.094***	0.091***
Provincial fixed effects	Yes	Yes	Yes	Yes
Pseudo R ²	0.046	0.051	0.048	0.047

*Note: Combined husband-wife decision-maker sample size $N = 6,022$ for household expenditure and $N = 5,999$ for investment/savings; results for “other decision-maker” not shown as not the focus of this study; $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.*

Table S10 Fertility Dependence/Autonomy by Home Purchase and High-Value Consumption Decision-Making Power

Variable	Home Purchase: Husband	Home Purchase: Wife	High-Value: Husband	High-Value: Wife
Traditional gender role conceptions (husband)	0.021**	-0.007	0.021*	0.006
Traditional gender role conceptions (wife)	0.002	0.027**	0.016*	0.023***
Personal annual income	-0.005*	-0.006*	-0.006*	-0.006*
Years of education	0.095***	0.082***	0.090***	0.099***
Provincial fixed effects	Yes	Yes	Yes	Yes
Pseudo R ²	0.049	0.045	0.046	0.048

Note: Combined husband-wife decision-maker sample size $N = 5,877$ for home purchase and $N = 5,912$ for high-value consumption; $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.*

Table S11 Fertility Dependence/Autonomy by Child Discipline Decision-Making Power

Variable	Child Discipline: Husband	Child Discipline: Wife
Traditional gender role conceptions (husband)	0.022***	0.009
Traditional gender role conceptions (wife)	0.003	0.007
Personal annual income	-0.006**	-0.169*
Years of education	0.089***	0.094***
Provincial fixed effects	Yes	Yes
Pseudo R ²	0.047	0.043

Note: Combined husband-wife decision-maker sample size $N = 5,945$ for child

discipline; $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.*

Table S12 Heterogeneity Analysis by Hukou Type

Variable	Non-Agricultural Hukou	Agricultural Hukou
Traditional gender role conceptions (husband)	0.010	0.016**
Traditional gender role conceptions (wife)	0.030**	0.005
Personal annual income	-0.007*	-0.004*
Years of education	0.091***	0.088***
Provincial fixed effects	Yes	Yes
Pseudo R ²	0.048	0.044

*Note: Hukou type heterogeneity analysis only excludes hukou variable; other control variables same as Table S2; $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.**

Table S13 Heterogeneity Analysis by Region

Variable	Eastern Region	Central/Western Region
Traditional gender role conceptions (husband)	0.017	0.012*
Traditional gender role conceptions (wife)	0.008*	0.009
Personal annual income	-0.006*	-0.005*
Years of education	0.089***	0.088***
Provincial fixed effects	Yes	Yes
Pseudo R ²	0.046	0.045

*Note: $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.**

Table S14 Heterogeneity Analysis by Education Level

Variable	Low Education	Medium Education	High Education
Traditional gender role conceptions (husband)	0.023**	0.006	-0.010
Traditional gender role conceptions (wife)	0.001	0.021**	0.060**
Personal annual income	-0.004*	-0.005*	-0.006*
Years of education	0.088***	0.087***	0.087***

Variable	Low Education	Medium Education	High Education
Provincial fixed effects	Yes	Yes	Yes
Pseudo R ²	0.047	0.046	0.051

*Note: Education level heterogeneity analysis only excludes education variable; other control variables same as Table S2; 2 participants in high education group excluded due to being only person in their province; p < 0.05, ** p < 0.01, *** p < 0.001.**

Table S15 Heterogeneity Analysis by Generation

Variable	Revolutionary	Planned Economy	Reform & Opening	Modern
Traditional gender role conceptions (husband)	0.036**	0.014**	-0.004	-0.007
Traditional gender role conceptions (wife)	0.009	0.008	0.006	0.064**
Personal annual income	-0.004*	-0.005*	-0.006*	-0.007*
Years of education	0.056***	0.096***	0.123***	0.079**
Provincial fixed effects	Yes	Yes	Yes	Yes
Pseudo R ²	0.048	0.046	0.045	0.052

*Note: 5 participants in Modern Generation excluded due to being only person in their province; p < 0.05, ** p < 0.01, *** p < 0.001.**

Table S16 Heterogeneity Analysis by Childbearing-Age vs. Non-Childbearing-Age

Variable	Non-Childbearing-Age	Childbearing-Age
Traditional gender role conceptions (husband)	0.021**	0.007

Variable	Non-Childbearing-Age	Childbearing-Age
Traditional gender role conceptions (wife)	0.008	0.010
Personal annual income	-0.004*	-0.005*
Years of education	0.120***	0.071***
Provincial fixed effects	Yes	Yes
Pseudo R ²	0.049	0.044

Note: p < 0.05, ** p < 0.01, *** p < 0.001.*

Table S17 Childbearing-Age Heterogeneity Analysis by Hukou

Variable	Agricultural Hukou	Non-Agricultural Hukou
Traditional gender role conceptions (husband)	0.026*	-0.004
Traditional gender role conceptions (wife)	-0.011	0.049***
Personal annual income	-0.004*	-0.005*
Years of education	0.046*	0.119***
Provincial fixed effects	Yes	Yes
Pseudo R ²	0.047	0.051

Note: Hukou type heterogeneity analysis only excludes hukou variable; 1 participant in agricultural group excluded due to being only person in their province; p < 0.05, ** p < 0.01, *** p < 0.001.*

Table S18 Childbearing-Age Heterogeneity Analysis by Region

Variable	Eastern Region	Central/Western Region
Traditional gender role conceptions (husband)	-0.002	0.023*
Traditional gender role conceptions (wife)	0.023*	-0.011
Personal annual income	-0.005*	-0.004*
Years of education	0.123***	0.114***
Provincial fixed effects	Yes	Yes
Pseudo R ²	0.048	0.045

Note: p < 0.05, ** p < 0.01, *** p < 0.001.*

Table S19 Childbearing-Age Heterogeneity Analysis by Education

Variable	Low Education	Medium Education	High Education
Traditional gender role conceptions (husband)	0.026*	-0.004	-0.009
Traditional gender role conceptions (wife)	-0.011	0.023**	0.060*
Personal annual income	-0.004*	-0.005*	-0.006*
Years of education	0.125***	0.091***	0.093***
Provincial fixed effects	Yes	Yes	Yes
Pseudo R ²	0.047	0.046	0.051

*Note: Education heterogeneity analysis only excludes education variable; 2 participants in high education group excluded due to being only person in their province; p < 0.05, ** p < 0.01, *** p < 0.001.**

Table S20 Supplementary Analysis Regression Results

Variable	Coefficient
Traditional gender role conceptions (husband)	0.769**
Traditional gender role conceptions (wife)	-0.293
Personal annual income	-0.305***
Years of education	-0.130**
Hukou (agricultural)	0.098*
Hukou (resident)	0.056
Total family property value	0.123***
Household financial assets	0.045
Number of household members	-0.231*
Provincial fixed effects	Yes
Pseudo R ²	0.087

*Note: Hukou variables use non-agricultural hukou as reference; p < 0.05, ** p < 0.01, *** p < 0.001.**

Note: Figure translations are in progress. See original paper for figures.

Source: ChinaXiv – Machine translation. Verify with original.